

REMARKS

The rejections of:

Claims 1, 3, 5, 11 and 14 under 35 U.S.C. § 102(b) as anticipated by U.S. 5,019,442 (Ogawa et al); and under 35 U.S.C. § 103(a) of:

Claims 1, 11 and 14 over U.S. 4,772,496 (Maeda et al) in view of Applicants' Admissions (AA);

Claims 1, 3, 5, 11, and 13 over AA in view of U.S. 6,124,004 (Furuta et al);

Claims 6-10 and 12 over AA in view of Furuta et al, and further in view of U.S. 4,943,606 (Inoue et al);

Claims 1, 11 and 16 over U.S. 4,337,279 (Polak) in view of U.S. 4,654,255 (Kojima et al); and

Claims 1, 3, 11 and 15 over Polak in view of U.S. 5,418,286 (Takahashi et al), are all respectfully traversed.

All of the claims now contain the limitations of Claim 4, not subject to any of the above rejections. Accordingly, it is respectfully requested that these rejections be withdrawn.

The rejection of Claims 1, 3-5, 7, 9-12 and 14 under 35 U.S.C. § 103(a) as unpatentable over Polak in view of U.S. 5,179,160 (Orikasa et al), is respectfully traversed. Prior to discussing this rejection, the following is offered as background.

The present invention relates to a resin molded component whose surface is coated with metal by a physical deposition method. As disclosed in the specification under "Description of the Related Art" beginning at page 1, second paragraph, due to the generally low adhesion of a metal to a resin molded component comprised of a thermosetting resin or a thermoplastic resin, especially when the metal layer is formed by a dry physical deposition method such as sputtering, vacuum evaporation, or ion plating, it is known to improve the adhesion of the metal layer by plasma-treating the surface of the resin molded component

prior to carrying out the physical deposition. However, even such plasma treatment is insufficient.

Applicants have discovered that by including a rubber-like elastic material in the base resin comprised of a thermoplastic resin or a thermosetting resin, improved metal adhesion as well as other improved properties are obtained.

The comparative data of record demonstrates the effectiveness of the presence of the rubber-like elastic material. The particular base resins and rubber-like elastic materials used in the Examples and Comparative Examples are described in the specification at page 26, last line, through the third line from the bottom of page 27. Examples 1-8 and Comparative Examples 1-6 were subjected to a peel test, and linear expansion coefficient was measured for some of the Examples and Comparative Examples. The results are shown in Table 1 at page 39 of the specification, reproduced below:

Table 1

	Base resin		Rubber-like elastic material		Rating	
	Kind	Mixing amount (parts in mass)	Kind	Mixing amount (parts in mass)	90° peel strength (N/mm)	Linear expansion coefficient ($\times 10^{-6}/^{\circ}\text{C}$)
Example 1	PPA	100	A	3	0.86	130
Example 2	PPA	100	B	3	0.86	-
Example 3	PPA	100	C	3	0.80	-
Example 4	PPA	100	D	3	0.75	-
Example 5	PPA	100	A	0.5	0.80	123
Example 6	PPA	100	A	10	0.86	150
Example 7	PPS	100	C	3	1.1	-
Example 8	PPA	100	B	3	0.86	-
Comparative Example 1	PPA	100	-	-	0.72	120
Comparative Example 2	PPS	100	-	-	0.60	-
Comparative Example 3	PET	100	-	-	0.40	-
Comparative Example 4	PET	100	A	3	0.44	-
Comparative Example 5	PBT	100	-	-	0.41	-
Comparative Example 6	PBT	100	A	3	0.43	-

The data show, first of all, that the presence of the rubber-like elastic material produces a higher 90° peel strength rating, i.e., better adhesion. In addition, comparing the Examples to Comparative Examples 4 and 6 demonstrates the improved results obtained when PPA or PPS are used as the base resin, as opposed to PET or PBT. Note that above-amended Claim 1 now explicitly limits the base resin to materials inclusive of PPA and PPS.

The above-discussed comparative results could not have been predicted by the applied prior art.

Polak discloses a method for increasing the peel strength of metal clad polymers by treating a polymer with a gas plasma prior to deposition of the metal thereon. Thus, Polak is no more relevant than what Applicants have already admitted is known in the art.

Recognizing the deficiencies in Polak, the Examiner relies on Orikasa et al. However, Orikasa et al does not remedy these deficiencies.

Orikasa et al discloses a thermoplastic resin composition comprising 50-99% by weight of a polyamide resin, and 50 to 1% by weight of a multiphase structure thermoplastic resin which is composed of 5 to 95% by weight of at least one particular ethylene copolymer and 95 to 5% by weight of a vinyl polymer or copolymer obtained from at least one vinyl monomer, either or both of the components possessing a dispersion phase where each particle has a diameter of 0.001 to 10 μm (column 2, lines 29-43). Orikasa et al is concerned with solving conventional disadvantages, i.e., to improve impact resistance and hygroscopicity/while simultaneously maintaining mechanical and thermal characteristics of the polyamide resins (column 2, lines 12-16).

Without the present disclosure as a guide, it is not clear why one skilled in the art would choose Orikasa et al, out of the thousands, if not more, of known polymer compositions to use as the polymer component of Polak. Note that Orikasa et al discloses and suggests nothing with regard to depositing a metal on their thermoplastic resin composition. Thus, there can be no motivation to combine Polak and Orikasa et al. Moreover, even if one skilled in the art did combine Polak and Orikasa et al, the above-discussed comparative results could not have been predicted.

For all the above reasons, it is respectfully requested that the rejection over Polak in view of Orikasa et al be withdrawn.

The rejection of Claims 7-8 under 35 U.S.C. § 112, second paragraph, in the recital of the term "plate-form" is respectfully traversed. It should be self-evident that this term describes a structure wherein, in an x-y-z space, the z dimension is substantially less than the x and y dimensions, i.e., like a plate or flake. Accordingly, it is respectfully requested that this rejection be withdrawn.

Applicants respectfully traverse the finality of the Office Action, since all the new rejections were not necessitated by Applicants' amendment. In the Amendment filed April 18, 2003, Applicants amended Claim 1 by incorporating the subject matter of Claim 2 therein, and added new Claims 12-16. Thus, the Examiner was free to make new grounds of rejection of the new claims. However, amended Claim 1 was identical to original Claim 2. In actual effect, Claim 2 was not amended since the subject matter of original Claim 2 was still being claimed in the guise of amended Claim 1. Thus, any new ground of rejection of amended Claim 1 was **not** necessitated by this amendment. Therefore, the application for the first time of Ogawa et al, and Polak combined with other newly-cited prior art, to reject Claim 1, was improper. As set forth in MPEP 706.07(a), which reads in pertinent part:

[A] second or any subsequent action on the merits . . . will not be made final if it includes a rejection, on newly cited art, . . . **of any claim not amended . . .** in spite of the fact that other claims may have been amended to require newly cited art.

(Emphasis added.)

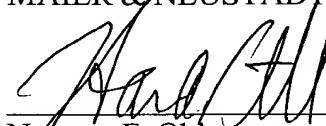
Thus, if the Examiner does not find that the present response puts the application in condition for allowance, then the Examiner is respectfully requested to withdraw the finality of the rejection, and enter the present amendment as a matter of right.

Application No. 09/986,005
Reply to Final Office Action of July 16, 2003

All of the presently pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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